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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/574,432	05/20/00	MOHR	G 99B014/2

IM52/0910

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EXAMINER	
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ART UNIT	**PAPER NUMBER**
1754	6

DATE MAILED: 09/10/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)	
09-574,432	MOHR ET AL.	
Examiner	Group Art Unit	
VANOY	1754	

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

☐ Responsive to communication(s) filed on _____.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1 - 63 is/are pending in the application.

Of the above claim(s) 42 - 63 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1 - 41 is/are rejected.

☒ Claim(s) 16 is/are objected to.

☒ Claim(s) 1 - 63 are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received: _____.

Attachment(s)

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 4 & 5

☐ Interview Summary, PTO-413

☒ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

Office Action Summary

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-41 (group I), drawn to a catalyst and a method for making the catalyst, classified in class 502, subclass 60+.

II. Claims 42-61 (group II), drawn to a process for converting hydrocarbons, classified in class 585, subclass 16+.

III. Claims 62-63 (group III), drawn to a process for cleaning the exhaust gas emitted from internal combustion engines, classified in class 423, subclass 213.2+.

The inventions are distinct, each from the other, because the inventions set forth in the claims of groups I, II and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)).

In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because each of the groups of claims is capable of supporting its own patent.

The subcombination has separate utility such as the claimed process for converting hydrocarbons as set forth in the claims of group II which is separate and

distinct from the utility of cleaning the exhaust gas emitted from an internal combustion engine set forth in the claims of group III. Additionally, the invention set forth in the claims of group I can be used for filtering particulates out of a fluid, which is a utility separate and distinct from those set forth in the claims of groups II and III.

Because these inventions are distinct for the reasons given above and the claims set forth in groups I, II and III have acquired a separate status in the art as shown by their different classification; the claims set forth in groups I, II and III have acquired a separate status in the art because of their recognized divergent subject matter, and the search required for any selected group of claims is not required for any of the other non-selected groups of claims, restriction for examination purposes as indicated is proper.

The Applicants are reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

During a telephone conversation with Mr. Edward Sherer, Applicants' Attorney, on Aug. 27, 2001, a provisional election was made with traverse to prosecute the invention of the catalyst and method for making the catalyst, claims 1-41 (group I).

Affirmation of this election must be made by the Applicants in replying to this Office Action. Claims 42-63 are withdrawn from further consideration by the Examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Priority

The Applicants' claim for domestic priority under 35 U.S.C. 119(e) is acknowledged.

Specification

a) The abstract is objected to because it does not provide any examples of the "porous inorganic material"; the "metal"; the "porous organic ion exchanger"; the "synthesis mixture". It would be helpful if the abstract provided express examples of the "catalyst".

b) The abstract is objected to because it does not set forth what the "emissions" are (i. e. the hydrocarbons, the carbon monoxide and the nitrogen oxides of claim 62) or what the source of the emissions are (i. e. the internal combustion engine of claim 62).

c) The abstract is objected to because it does not provide any examples of what the hydrocarbons are or what the hydrocarbons are converted into.

d) The use of the trademark "Dowex MSA-1" has been noted on pg. 41 ln. 9 in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology. *The entire specification should be checked to ensure that all*

trademarks are either capitalized and/or accompanied by the classic superscripted trademark symbols: "TM" or "®".

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Objections

a) In claim 16 ln. 15, the comma between "step" and "(ii)" should be deleted.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> **The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.**

Claims 4, 5, 15, 19, 22, 24, 25, 34 and 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as their invention.

a) Claims 4 and 19 do not particularly out and distinctly set forth the metes and bounds of "large" and "intermediate" sizes.

b) Claims 5 and 25 do not particularly point out and distinctly set forth how the asterick is intended to further limit "BEA". What the difference between "BEA" and "*BEA"?

c) Claim 22 does not particularly point out and distinctly set forth what is intended by "hydrothermal". Does "hydrothermal" mean heating in the presence of water? Does "hydrothermal" mean heating in the presence of hydrogen?

d) Claim 24 does not particularly point out and distinctly set forth the metes and bounds of "strongly basic". How basic must the anion exchange resin be before it is considered "strongly basic"?

e) Claims 15 and 34 do not particularly point out and the metes and bounds of "significant". How much amorphous material can the macrostructure contain and still be considered not to contain "significant" amounts of the amorphous material?

f) Claim 36 does not particularly point out and distinctly set forth what "means other then physical binding" are contemplated.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-41 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 16-45 of copending Application No. 09-315,869. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of 09-315,869 and 09-574,432 disclose at least obvious variations of the same method for making a catalyst by providing an admixture of porous organic ion exchanger and synthesis mixture, which occupies at least a portion of the pore space of the organic ion exchanger and converting the resulting mixture into a porous inorganic material.

The difference between the claims of 09-315,869 and 09-574,432 is that the claims of 09-574,432 call the presence of a metal within or on the resulting composition.

Claim 42 (for example) in 09-315,869 reports that the mesoporous inorganic material may be silica, alumina or aluminum silicate.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process and composition of 09-315,869 by providing metals within or on the resulting composition, in the manner called for in the claims of 09-574,432, because the materials mentioned in at least claim 42 in 09-315,869 (i. e. the alumina, etc.) are well known supports for such catalytic metals.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The person "having ordinary skill in the art" has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4, 6-12, 14-24, 26-28, 33-36 and 38-41 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U. S. Pat. 4,680,170 to Lowe et al.

Example 1 described in col. 4 in U. S. Pat. 4,680,170 describes what appears to be the same method for making a metal containing-zeolite catalyst (please also see col. 3 lns. 10-16) which appears to be useful for aromatisation, hydrocarbon carbon cracking, isomerization processes, etc. (please also see col. 1 lns. 16-19), wherein the catalyst was made by:

Preparing a "solution A" comprising silica (i. e. the Applicants' "synthesis mixture");

Preparing a "solution B" comprising Dowex 1-XB ion exchange resin (which may be loaded/exchanged with silicate and/or aluminate ions: please also see col. 3 lns. 10-16);

Adding "solution A" to "solution B"; heating the mixture and allowing it to sit so as to produce a "silicalite" zeolite-type product (please also see col. 3 lns. 17-20) (*Note that silicalite is expressly mentioned in Applicants' claims 6 and 7)*, and

(evidently) separating off the ion exchange resin from the zeolite product (please also see col. 2 lns. 56-58), in a manner which is not seen to be unobviously distinct from the "method for making" limitations set forth in at least Applicants' claims 16-24, 26-28, 33-36 and 38-41.

The differences between the Applicants' claims and U. S. Pat. 4,680,170 is the manner in which the Applicants *describe* the product zeolite (i. e. " . . . (a) a three-dimensional network of self bound particles of porous inorganic material; and, (b) at least one metal, said particles occupying less than 75% of the total volume of said at least one macrostructure and being joined together to form a three-dimensional interconnected network comprised of pores . . . " set forth in at least Applicants' claim 16; the manner in which the Applicants' *describe* the ion exchange resin (i. e. " . . . has an ion exchange capacity greater than about 1 mEq./g of dry porous anionic ion-exchanger" set forth in Applicants' claim 23), etc., however it is submitted that these differences would have been obvious to one of ordinary skill in the art at the time the invention was made because it is expected to be within the skill level of the person having ordinary skill in the art to readily *describe* the components used in the process of manufacturing the zeolites set forth in U. S. Pat. 4,680,170, as well as the chemical and physical properties of the resulting, product zeolite. Since no unobvious distinction is seen or has been shown between the actual process for making the zeolites and the actual zeolites (per se), then these claims are rejected under 35 USC 102 – as well as 35 USC 103.

Product claims 1-4, 6-12, 14 and 15 are also rejected since it is reasonably expected that the same method for making zeolites will inherently produce the same claimed zeolite products.

Claims 1-12, 14-36 and 38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Pat. 4,680,170 to Lowe et al.

Claims 1-4, 6-12, 14-24, 26, 27, 28, 33-36 and 38-41 are rejected as being obvious from U. S. Pat. 4,680,170 to Lowe et al. for the reasons previously set forth.

The difference between the Examples described in U. S. Pat. 4,680,170 and Applicants' claims 5 and 25 is that the Examples of U. S. Pat. 4,680,170 are limited to the production of "silicalite" (please see Examples 1 and 2); the production of "sodalite" (Example 3); what appears to be a mixture of zeolite A and sodalite (Example 4) and a mixture of zeolite Nu-2 and amorphous material (Example 5), wherein Applicants' claim 5 and 25 call for "BEA" molecular sieve, etc.

Col. 3 lns. 55-60 in U. S. Pat. 4,680,170 mentions the synthesis of other zeolites, such as beta zeolite (i. e. "BEA" zeolite); ZSM-12 and ZSM-20.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the process described in U. S. Pat. 4,680,170 to make zeolites other than the silicalite, etc. expressly mentioned in the Examples of U. S. Pat. 4,680,170 such as beta (i. e. "BEA") zeolite, etc., in the manner called for in at least Applicants' claims 5 and 25, because the disclosure set forth in col. 3 lns. 55-60 in U. S.

Pat. 4,680,170 fairly suggests that the process disclosed therein can be used to make these other zeolites.

The difference the Applicants' claims and U. S. Pat. 4,680,170 is that Applicants' claims 29-32 set forth the introduction of the metal into various steps of the process for making the zeolite (whereas, in the process of U. S. Pat. 4,680,170, the metal appears to be bound to the resin used to make the zeolite: please see col. 3 lns. 11-16 in U. S. Pat. 4,680,170), however it is submitted that these differences would have been obvious to one of ordinary skill in the art at the time the invention was made, namely to modify the process described in U. S. Pat. 4,680,170 by introducing the metal into various steps of the method for making the zeolite, in the manner called for in at least Applicants' claims 29-32, because of the expected advantage of resulting, product zeolite to still contain the desired metal. Expected results and/or advantages are submitted to be evidence of obviousness.

Claims 1-41 rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Pat. 4,680,170 to Lowe et al. as applied to claims 1-12, 14-36 and 38-41 above, and further in view of U. S. Pat. 6,160,191 to Smith et al.

The difference between the Applicants' claims and U. S. Pat. 4,680,170 is that Applicants' claims 13 and 37 set forth that the metal is a hydrogenation/dehydrogenation metal (wherein pg. 14 lns. 16-24 in the Applicants' specification mentions what appears to be the same isomerization and cracking set forth in col. 1 lns. 16-20 in U. S. Pat. 4,680,170 as being among the

hydrogenation/dehydrogenation processes contemplated, and pg. 14 lns. 26 et seq. in the Applicants' specification sets forth that such hydrogenation/dehydrogenation metals include Pt, Pd, Ir, etc.).

U. S. Pat. 6,160,191 describes the inclusion of the same hydrogenation/dehydrogenation metals (i. e. Pt, Pd, Ir, etc.: please see col. 7 ln. 65 to col. 8 ln. 9 in U. S. Pat. 6,160,191) into a zeolite, which may be used for the same cracking, isomerization, etc. mentioned in col. 1 lns. 16-20 in U. S. Pat. 4,680,170 (please also see col. 8 lns. 24-56 in U. S. Pat. 6,160,191).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process and zeolites described in U. S. Pat. 4,680,170 by including the hydrogenation/dehydrogenation metals set forth in at least Applicants' claims 13 and 37 as well as in col. 7 ln. 65 to col. 8 ln. 9 in U. S. Pat. 6,160,191 into the zeolites, because of the taught advantage of these metals to be catalytically active for these hydrocarbon conversion reactions (please see col. 7 ln. 65 to col. 8 ln. 2 in U. S. Pat. 6,160,191).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 703-308-2540. The examiner can normally be reached on 8 hr. days.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffen can be reached on 703-308-1164. The fax phone numbers

for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-873-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Timothy Vanoy/tv
September 6, 2001

Timothy Vanoy
Patent Examiner

Art Unit 1754